GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

Municipal Administration & Urban Development Department - Solid Waste Management Policy for the State of Andhra Pradesh in terms of Rule-11 & 15 of Solid Waste Management Rules, 2016 – Approved - Orders – Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (B1) DEPARTMENT

G.O.Ms.No.254 **Dated:02.08.2018**

Read the following:-

1. Solid Waste Management Rules, 2016 from MoEFCC, GOI, dt.08.04.2016.
2. From the Asst.Registrar, Hon'ble Supreme Court of India, New Delhi Lr.D.No.2889/2015/SC/PIL(W), dt.04.04.2018 along with Orders Dt.27.3.2018 in W.P. (Civil) No.1/2015 of Hon'ble Supreme Court.
3. Orders dt.10.07.2018 in W.P. (Civil) No.1/2015 of Hon'ble Supreme Court, New Delhi.
4. From the DMA, AP, Guntur Lr.Roc.No.12057/26/2018/M3, dt.25.07.2018.

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ORDER:

The Government of India have taken up the Swachh Bharath Mission with a view to make all Indian Cities and Towns totally sanitized, healthy and livable to derive Public Health and Environmental outcomes for all citizens with special focus on hygienic and affordable sanitation for the urban poor and women. The main mission objective is elimination of open defecation, 100% collection and scientific procession, disposal, re-use and recycling of Municipal Solid Waste, creating an enabling environment for private sector participation in Capital and O&M expenditure, IEC and Public Awareness.

2. The Ministry of Environment, Forest and Climate Change, GoI have notified Solid Waste Management Rules, 2016 vide reference 1st read above, in supersession of the Municipal Solid Waste (Management & Handing) Rules, 2000. In the said rules, Rule 11 and 15 have contemplated the duties of the Secretary-in-charge, Urban Development in the State and duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations respectively.

3. The Hon'ble Supreme Court of India, New Delhi in the reference 2nd and 3rd read above, have granted three month's time to the State Governments/UT Administrations to prepare Solid Waste Management Policy/Strategy in the State of Andhra Pradesh in terms of Rule-11 & 15 of Solid Waste Management Rules, 2016.

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4. The Director of Municipal Administration, AP, Guntur in the reference 4th read above, while stating among other things has furnished draft Solid Waste Management Policy for the State of Andhra Pradesh in terms of Rule-11 & 15 of Solid Waste Management Rules, 2016 duly consulting the subject experts and stake holders.

5. Government have examined the matter with detailed deliberations with all concerned and hereby approve the Solid Waste Management Policy for the State of Andhra Pradesh in terms of Rule-11 & 15 of Solid Waste Management Rules, 2016. The Solid Waste Management Policy is Annexed to this order.

6. The Director of Municipal Administration, A.P. Guntur shall take further necessary action in the matter.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

R. KARIKAL VALAVEN
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Director of Municipal Administration, A.P, Guntur.
The Managing Director, Swachh Andhra Corporation, AP, Vijayawada.
The Chairman, AP Pollution Control Board, Vijayawada.
Copy to:
The Forest & Environment Department, AP Secretariat, Velagapudi.
The OSD to Hon'ble Minister for MA&UD Department.
The PS to Principal Secretary to Government, MA&UD Department.
Sf/Sc.

// FORWARDED :: BY ORDER //

SECTION OFFICER

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ABBREVIATIONS

CDMA	-	Commissioner and Director of Municipal Administration
CSR	-	Corporate Social Responsibility
D2D	-	Door to Door
DPR	-	Detailed Project Report
DRC	-	Dry Resource Centre
EPR	-	Extended Producer Responsibility
IALA	-	Industrial Area Local Authority
IE	-	Industrial Estate
IEC	-	Information Education and Education
IP	-	Industrial Park
MRF	-	Material Recovery Facility
MT	-	Metric Tonnes
NUSP	-	National Urban Sanitation Policy
P&CP	-	Prevention & Control of Pollution
PPE	-	Personal Protective Equipment
PPP	-	Public Private Partnership
RDF	-	Refused Derived Fuel
RWA	-	Residential Welfare Association
SEZ	-	Special Economic Zone
SHG	-	Self Help Group
SLAB	-	State Level Advisory Body
SLB	-	Service Level Benchmarks
SLMC	-	State Level Monitoring Committee
SWM	-	Solid Waste Management
TPD	-	Tonnes Per Day
APSIIDC	-	Andhra Pradesh State Industrial Infrastructure Development Corporation
APSPCB	-	Andhra Pradesh State Pollution Control Board
ULB	-	Urban Local Body

DEFINITIONS

1. **Aerobic composting** means a controlled process involving microbial decomposition of organic matter in the presence of oxygen

2. **Anaerobic digestion** means a controlled process involving microbial decomposition of organic matter in absence of oxygen

3. **Authorisation** means the permission given by the State Pollution Control Board or Pollution Control Committee, as the case may be, to the operator of a facility or urban local authority, or any other agency responsible for processing and disposal of solid waste

4. **Biodegradable waste** means any organic material that can be degraded by micro-organisms into simpler stable compounds

5. **Bio-methanation** means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas

6. **Brand owner** means a person or company who sells any commodity under a registered brand label

7. **Buffer zone** means zone of no development to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total and area allotted for the solid waste processing and disposal facility

8. **Bulk waste generator** means and includes buildings occupied by the Central government departments or undertakings, State government departments or undertakings, local bodies, public sector undertakings or private companies, hospitals, nursing homes, schools, colleges, universities, other educational institutions, hostels, hotels, commercial establishments, markets, places of worship, stadia and sports complexes having an average waste generation rate exceeding 100kg per day

9. **Bye-laws** means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these rules effectively in their jurisdiction

10. **Census town** means an urban area as defined by the Registrar General and Census Commissioner of India

11. **Combustible waste** means non-biodegradable, non-recyclable, non-reusable, non-hazardous solid waste having minimum calorific value exceeding 1500 kcal/kg and excluding chlorinated materials like plastic, wood pulp, etc.

12. **Composting** means a controlled process involving microbial decomposition of organic matter

13. **Contractor** means a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job for service providing authority

14. **Co-processing** means use of non-biodegradable and non-recyclable solid waste having calorific value exceeding 1500k/cal as raw material or as a source of energy or both to replace or supplement the natural mineral resources and fossil fuels in industrial processes

15. **Decentralised processing** means establishment of dispersed facilities for maximizing the processing of biodegradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal

16. **Disposal** means the final and safe disposal of post processed residual solid waste and inert street sweepings and silt from surface drains on land as specified in Schedule I to prevent contamination of ground water, surface water, ambient air and attraction of animals or birds

17. **Domestic hazardous waste** means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level

18. **Door to door collection** means collection of solid waste from the door step of households, shops, commercial establishments, offices, institutional or any other non-residential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society, multi storied building or apartments, large residential, commercial or institutional complex or premises

19. **Dry waste** means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non -recyclable waste, combustible waste and sanitary napkin and diapers, etc.

20. **dump sites** means a land utilised by local body for disposal of solid waste without following the principles of sanitary land filling

21. Extended producer responsibility (EPR) means responsibility of any producer of packaging products such as plastic, tin, glass and corrugated boxes, etc., for environmentally sound management, till end-of-life of the packaging products

22. Facility means any establishment wherein the solid waste management processes namely segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal are carried out.

23. Fine means penalty imposed on waste generators or operators of waste processing and disposal facilities under the bye-laws for non-compliance of the directions contained in these rules and/or bye- laws

24. Form means a Form appended to these rules

25. Handling includes all activities relating to sorting, segregation, material recovery, collection, secondary storage, shredding, baling, crushing, loading, unloading, transportation, processing and disposal of solid wastes

26. Inert means wastes which are not bio-degradable, recyclable or combustible street sweeping or dust and silt removed from the surface drains

27. Incineration means an engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures

28. **Informal waste collector** includes individuals, associations or waste traders who are involved in sorting, sale and purchase of recyclable materials

29. **Leachate** means the liquid that seeps through solid waste or other medium and has extracts of dissolved or suspended material from it.

30. **Local body** for the purpose of these rules means and includes the municipal corporation, municipal council, Nagar panchayat, Census towns, Notified areas and Notified Industrial Townships with whatever name they are called in different States and union territories in India.

31. **Materials recovery facility (MRF**) means a facility where non-compostable solid waste can be temporarily stored by the local body or any other entity mentioned in rule 2 or any person or agency authorised by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorised informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity mentioned in rule 2for the purpose before the waste is delivered or taken up for its processing or disposal.

32. **Non-biodegradable waste** means any waste that cannot be degraded by micro-organisms into simpler stable compounds.

33. **Operator of a facility** means a person or entity, who owns or operates a facility for handling solid waste which includes the local body and any other entity or agency appointed by the local body

34. Primary collection means collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices and other non-residential premises or from any collection points or any other location specified by the local body

35. Processing means any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products

36. Recycling means the process of transforming segregated non-biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original products

37. Redevelopment means rebuilding of old residential or commercial buildings at the same site, where the existing buildings and other infrastructures have become dilapidated

38. Refused derived fuel (RDF) means fuel derived from combustible waste fraction of solid waste like plastic, wood, pulp or organic waste, other than chlorinated materials, in the form of pellets or fluff produced by drying, shredding, dehydrating and compacting of solid waste

39. Residual solid waste means and includes the waste and rejects from the solid waste processing facilities which are not suitable for recycling or further processing.

40. Sanitary land filling means the final and safe disposal of residual solid waste and inert wastes on land in a facility designed with protective measures against pollution of ground water, surface water and fugitive air dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants slope instability and erosion

41. Sanitary waste means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste.

42. Schedule means the Schedule appended to these rules.

43. Secondary storage means the temporary containment of solid waste after collection at secondary waste storage depots or MRFs or bins for onward transportation of the waste to the processing or disposal facility

44. Segregation means sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non-biodegradable wastes including recyclable waste, nonrecyclable combustible waste, sanitary waste and non-recyclable inert waste, domestic hazardous wastes, and construction and demolition wastes.

45. Service provider means an authority providing public utility services like water, sewerage, electricity, telephone, roads, drainage, etc.

46. Solid waste means and includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non -residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities and other entities mentioned in rule 2;

47. Sorting means separating various components and categories of recyclables such as paper, plastic, cardboards, metal, glass, etc., from mixed waste as may be appropriate to facilitate recycling.

48. Stabilising means the biological decomposition of biodegradable wastes to a stable state where it generates no leachate or offensive odours and is fit for application to farm land ,soil erosion control and soil remediation.

49. Street vendor means any person engaged in vending of articles, goods, wares, food items or merchandise of everyday use or offering services to the general public, in a street, lane, side walk, footpath, pavement, public park or any other public place or private area, from a temporary built up structure or by moving from place to place and includes hawker, peddler, squatter and all other synonymous terms which may be local or region specific; and the words "street vending" with their grammatical variations and cognate expressions, shall be construed accordingly.

50. Tipping fee means a fee or support price determined by the local authorities or any state agency authorised by the State government to be paid to the concessionaire or operator of waste processing facility or for disposal of residual solid waste at the landfill;

51. Transfer station means a facility created to receive solid waste from collection areas and transport in bulk in covered vehicles or containers to waste processing and, or, disposal facilities.

52. Transportation means conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions

53. Treatment means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its volume and potential to cause harm.

54. User fee means a fee imposed by the local body and any entity mentioned in rule 2 on the waste generator to cover full or part cost of providing solid waste collection, transportation, processing and disposal services.

55. Vermi-composting means the process of conversion of bio-degradable waste into compost using earth worms;

56. Waste generator means and includes every person or group of persons, every residential premises and non-residential establishments including Indian Railways, defence establishments, which generate solid waste emphasis to prevention, reduction, reuse, recycling, recovery and disposal, with prevention being the most preferred option and the disposal at the landfill being the least

57. Waste picker means a person or groups of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation the streets, bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood.

1. BACKGROUND

Municipalities have overall responsibility for Municipal Solid waste Management. However most of them are unable to provide proper system to tackle the current situation. Magnitude and density of urban population in India is increasing rapidly and consequently the Municipal agencies spend about 5-25% of their budget on MSWM.

Despite of such heavy expenditure, the present level of service in many urban areas is so low that there is a threat to the public health in particular and the environmental quality in general. Collection and transportation activities constitute approximately 80–95% of the total budget of MSWM. Hence, it forms a key component in determining the economics of the entire MSWM system. On the contrary, disposal and treatment of waste is an underinvested area and open dumping, uncontrolled and poorly managed landfills are a common feature across most Indian cities and towns. The results pose a serious threat to the underground water reserves and surface water bodies through run –offs. The challenges of municipal solid waste management range from insufficient capital expenditure, non-affordability to meet the O&M, lack of technical know-how, lack of public awareness, non-availability of land and fighting the opposition from the neighbourhoods where the MSW facility is located.

Managing the problem of solid waste in a more integrated and comprehensive manner, makes it imperative for the state government to set forth a strategy to address the different aspects of sanitation management related tackling solid waste in a systematic, coordinated and time-bound manner.

Though the Solid Waste Management (SWM) Rules, 2016 make the ULBs responsible for management of wastes, ULBs have to partner with private waste management companies, NGOs and RWAs for various segments of the MSW value chain due to various capacity constraints.

In order to implement and comply with the SMW Rules, 2016 and overcome capacity constraints at the local level, some states including the state of Andhra Pradesh have come up with centralized waste management systems at the city level or regional level either on Non-PPP or PPP approach. Centralized waste management systems at the city level are being practiced in Guwahati, Hyderabad and Chennai, among others. Regional level SMW management facilities have come up in Tamil Nadu and Gujarat. The need of the hour is to devise an efficient solid waste management system where in decision-makers and waste management planners can deal with the increase in complexity, and uncertainty.

The Solid Waste Management Rules, 2016 (the 'SMW Rules'), issued by the Ministry of Environment and Forests, Government of India, under the Environment (Protection) Act, 1986, prescribe the manner in which the Authorities have to undertake collection, segregation, storage, transportation, processing and disposal of the municipal solid waste (the 'MSW') generated within their jurisdiction under their respective governing legislation.

In this context, there is need to revisit, develop, and implement appropriate strategy framework to guide the urban local bodies for effectively handling MSW in order to comply with the SMW Rules, 2016 notified by the Ministry of Environment & Forest, Govt of India and related regulations. The framework will guide and support the urban local bodies in the state for managing the solid waste scientifically and cost effectively.

2. KEY INITIATIVES UNDERTAKEN BY MA&UD DEPARTMENT

To implement the SWM Rules, 2016 (by considering the draft SWM Rules, 2015), Government of Andhra Pradesh, issued Uniform Operational Guidelines for Maintenance of Sanitation and Solid Waste Management vide **G.O. Ms No. 279, MA, dated 31.12.2015.** This is the first ever such state-wide initiative to ensure all the 110 ULBs in the state of Andhra Pradesh, create a sustainable and efficient system to micro-plan, rationalize and workout-source key activities to ensure professional SWM service to the citizens and take a giant leap towards achieving compliance of SWM Rules 2016 and NGT directives. The salient features of the cited Government Orders are;

a) Rationalized micro-management system to ensure systematic distribution of all resources including men and material as per the requirements of the ULB and in alignment with the CPHEEO manual guidelines

b) Shifting from Worker Outsourcing to Work Outsourcing (Comprehensive responsibility for supply of vehicles, conservancy materials, workers etc.,)

c) 100% service coverage - Micro Pocket (for 350 + waste generators) as a basic unit of service delivery in residential areas.

d) Three Way Segregation of Waste at Source

e) Gate-to-Gate Stream Separate Waste Collection & Transportation

f) Street Sweeping & Drains Cleaning

g) Litter Collection and Sweeping of Main Roads & Public Places

h) Disinfection and Vector Control

i) Collection and Transportation of Commercial and Bulk Solid Waste in Commercial Areas

j) Assessment of service level performance of the contractor through technology-based monitoring and evaluation system.

- Project Management Unit (**PMU**) at State Level was established, vide GO Ms.No.86, MA&UD Department., dated 11-04-2016, to give handholding support to all the 110 ULBs in the State, in implementation of the said guidelines. For this purpose, several State Level, Regional Level, ULB Level Work Shops were conducted. In addition to this, ULB Level City Sanitation Task Forces were also constituted for involving them in the implementation of the said guidelines. Local Resource Persons were also identified for creating awareness among the stake holders. Trainings were also imported to them and also to the functionaries of the Urban Local Bodies through Project Management Unit. Basing on the cited guidelines estimates were prepared for calling tenders for Maintenance of Sanitation by 87 Urban Local Bodies and Administrative Sanctions by the Government were given to 54 ULBs, Technical Sanctions for the estimates of 49 ULBs were also given and 29 ULBs are to be issued Administrative sanction shortly. The preparation of guidelines, terms and conditions for calling tenders is in progress. Once, the service provider is put in place of finalizing the bids, the gate-to-gate collection, segregation and transportation as envisaged in the SWM Rules, 2016 will be enforced through monitoring and evaluation tool which is under finalization.

- State Capacity Building & Information Education Behaviour Change Communication Mission Management Unit (**SCIMMU**) was formulated vide G.O.Rt.No.507 dt.05.08.2016, to facilitate managing stakeholders in a sustainable manner, through a multi-pronged approach of Capacity Building for Service providers and Institution Building and Information Education and Behaviour Change for the waste generators – the community service receivers.

- In addition to this, recently an **App called PURASEVA** has been developed and placed in Google Play Store. One of the facilities provided in the App is that the citizen can file complaint by using the App for redressal on the services rendered by the Urban Local Bodies. One of the categories of the complaints included in the App relates to Sanitation and Solid Waste Management issues. Specific timelines were stipulated for redressal of grievances. This has been linked with online application developed for the public grievances redressal in the name of PGR Module under ERP. Wide publicity has been given on this App to educate the people on it. Hence, this App will also act as one of the tools for improvement of the sanitary conditions in the ULBs.

- The Government of Andhra Pradesh have established Swachh Andhra Corporation (SAC) and given the mandate to fulfil the Mahatma Gandhi's dream of "Swachh Bharat" by eliminating open defecation, eradication of manual scavenging, Solid and Liquid Waste Management, Information, Education and Communication and Capacity Building activities to maintain the cleanliness and hygiene in urban and rural areas of Andhra Pradesh. Swachha Andhra Corporation is taking up the activities among others for scientific processing and disposal of municipal Solid waste.

- As a part of it, the Swachh Andhra Corporation has initiated action for setting up of Waste to Energy Plants under PPP mode in Cluster Approach. At present Concessionaire Agreements were entered with the Agencies for establishment of 10 Waste to Energy Plants (10 Clusters with 53 ULB). With this, 4471 MTs of Municipal Solid Waste per day will be processed and it is expected to generate 63 MW Power. Land has also been identified in all the 10 Lead ULBs for setting up of the Waste to Energy Plants and given to the developer on lease basis for a period of 25 years. The ULBs and developers are taking all

necessary steps to establish the plants in accordance with the SWM Rules, 2016.

- Waste to Bio-CNG gas projects covering 8 ULBs, are in construction stage and are expected to Commission by Sept'18.29 Waste to Compost projects covering 29 ULBs are in construction stage of which 11 projects were already commissioned; balance will be commissioned by Oct'18. 9 projects were awarded in April 2018 and 2 projects are yet to be awarded and these 11 projects are to be completed by Dec'18.

- For all the Waste to Compost projects, land (along with infrastructure) is provided to the developers on lease for 20 years at a rate of Rs.1/- per Sq. mt per annum and allotted annual budget of Rs.40 Crores towards processing fee to the developers for 20 years.

- Mechanization of collection and transportation of daily generated waste is being implemented by procuring modern equipment which will improve quality and efficiency of the collection and transportation of the waste. Procurement of 140 Nos. 14 cum capacity refuse compactors, 255 Skid Steer Loaders, 15 truck mounted road sweeping machines, 8,232 Pushcarts, 81,887 bins, 330 mini compactors of 6 Cum capacity & 150 compact heavy-duty sweeper of 1 Cum for ULBs with the approval of GoAP.

- Similarly, Swachh Andhra Corporation has also floated Request for Proposal (RFP) for establishment of Construction & Demolition Waste Treatment Projects in three places i.e. at Visakhapatnam, Vijayawada & Tirupati - techno-commercial evaluation of the bids received are under examination at Government Level for finalization. Land was identified for all the 3 Projects and is expected to be commissioned by August 2017.

- Swachh Andhra Corporation has also floated Request for Proposal (RFP) for reclamation of dump sites at Greater Visakhapatnam Municipal Corporation (GVMC) and Vijayawada Municipal Corporation (VMC) through bio-mining technology. However, as a pilot basis GVMC has issued 5 acres of Kapuluppada dump site for reclamation to Coromandel International Ltd., with technical assistance of M/s. Bhavani Bio Organics Pvt Ltd. Steps are also taken to reclaim valuable municipal old dump sites through process of bio-mining. With political will, backed by a dynamic team and massive support from citizens, the Government of Andhra Pradesh are all set to achieve universal access to Sanitation and thereby make the Urban and Rural areas Smart, Clean, Safe and Healthy.

- Black Spot Monitoring & Management (BSMM) Is the first ever state wide initiative to track real-time Black Spots Monitoring and converting them into Green Spots in a sustainable basis

- 9 Star Rating of Wards – Several indicators for ward level development in which the very first indicator is on D-2-D coverage and collection which is monitored across all the election wards / divisions across the state.

- A proposal for relevant Amendments and Provisions in the AP Municipalities Act, 1965 and AP Municipal Corporations Act, 1955 for Levy of Fines on persons or agencies for throwing Solid Waste or Garbage in Streets/Open Places etc., has been prepared and it will be placed before the State Cabinet for their perusal and approval.

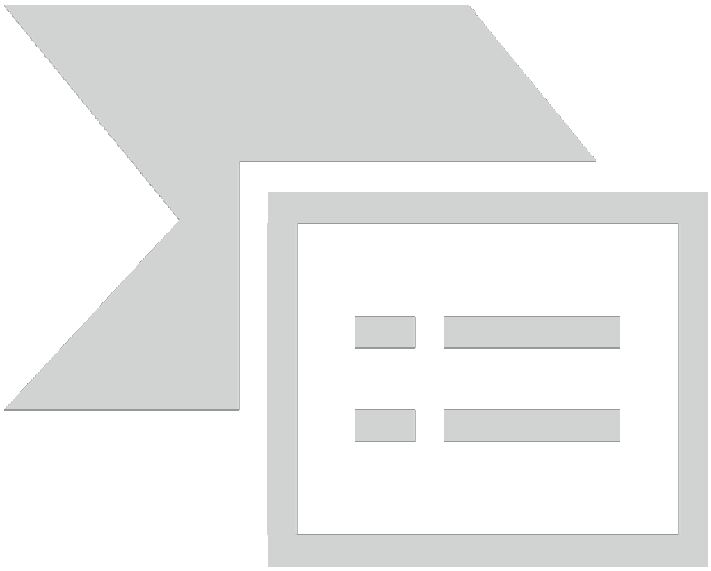
3. ABOUT THE SWM RULES 2016

Ministry of Environment, Forest and Climate change, Government of India under the provision of Environment Protection act 1986, notified latest regulations "Solid Waste Management Rules 2016", vide S.O. 1357 (E), dated 8th April 2016. The notification spells out clear duties to different stakeholders as mentioned below:

- Duties of waste generators
- Duties of Ministry of Environment, Forest and Climate Change
- Duties of Ministry of Urban Development
- Duties of Department of Fertilisers, Ministry of Chemicals and Fertilisers
- Duties of Ministry of Agriculture, Government of India
- Duties of the Ministry of Power
- Duties of Ministry of New and Renewable Energy Sources
- Duties of the Secretary–in-charge, Urban Development in the States and Union territories
- Duties of District Magistrate or District Collector or Deputy Commissioner
- Duties of the Secretary–in-charge of Village Panchayats or Rural Development Department
- Duties of Central Pollution Control Board
- Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations
- Duties of State Pollution Control Board or Pollution Control Committee
- Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers
- Duties of the industrial units located within one hundred km from the refused derived fuel and waste to energy plants based on solid waste
- Criteria for Duties regarding setting-up solid waste processing and treatment facility
- Also, to tackle other solid waste, Ministry notified the following rules under the provision of Environment protection act 1996:
- Construction and Demolition Waste Management, 2016
- E Waste (Management) Rules, 2016
- Plastic Waste Management Rules, 2016
- Bio- Medical (Management and Handling) Rules,2016

4. URBAN LOCAL BODIES (ULBS) IN THE STATE OF ANDHRA PRADESH AND STATUS OF SWM

With the enactment of the Andhra Pradesh Reorganization Act 2014, the state of A.P. was bifurcated into Andhra Pradesh and Telangana. This is one of the 29 states of India, situated on the south eastern coast of the country. The state is the eighth largest state in India covering an area of 160,205 km2.The state of Andhra Pradesh comprises 13 districts namely Anantapur, Chittoor, Guntur, East Godavari, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vizianagaram, Vishakhapatnam, West Godavari and Y.S.R. Andhra Pradesh is now the tenth largest state in India with 49.38 million as total population. The state has planned to develop "Amaravati" as its capital city. As per the Census 2011 the urban population of Andhra Pradesh was 14.63 million representing about 29.58 percent of total population.



Most of the net increase in the urban population is contributed by five districts in the state, viz: Vishakhapatnam (47.51 percent), Krishna (41.01 percent), Y.S.R (34.1 percent), Guntur (33.89 percent) and Chittoor (29.47 percent).Andhra Pradesh ranks tenth of all Indian States in the Human Development Index scores with a score of 0.416.

The urban population is spread across 110 Urban Local Bodies consisting of 14 Corporations, 71 Municipalities of all grades and 25 Nagar Panchayats. The net increase of urban population between 2001 and 2011 is approximately 5.4 percent.

Vijayawada and Vishakhapatnam are major cities in the state. The urban areas contribute close to 65 percent of the economic growth in the state. As per the AP State Sanitation Strategy 2016 the secondary sector contributed 24.72 percent to the State Gross Domestic Product (SGDP) while primary sector contributed about 21.51 percent in 2010-11. If the trends on the economic growth are to be maintained or increased, it is imperative to focus attention on the urban areas for their robust sanitation infrastructure. Urban Population in Andhra Pradesh is growing at 33.49% compared to the Country's 31.16%, in 2011.

The ULBs in the Andhra Pradesh state on an average generates about **6440 MT** of wastes per day and in terms of the per capita of waste generation in the ULBs ranges from 0.2-0.4 kg/per day. The quantities of waste are growing 5% annually with the increasing per capita generation and change in living standards especially in the class-1 cities. Therefore, there is need to enhance waste management and handling capacity. ULBs in state spend around Rs. 500 - 1500 per tonne/day being paid from Municipal budget. Of which, 60-70% on collection alone, 20-30% on transportation, Less than 10% or less on Processing and Disposal activities. Low investments with majority of the ULBs lack proper treatment and disposal facility. The NUSP rating of the class-1 cities in state in 2009 indicates have poorly rated the cities and have recommended for immediate need for improvement in sanitation situation. Government of Andhra Pradesh has taken a proactive interest in encouraging ULBs in the state to comply with the SMW Rules, 2016 and has spent entire allocation of 374 Crores under the 12th Finance Commission grants for development of the solid waste infrastructure and services. The mission mode program was conceptualised and implemented with the support and involvement of the community-based organizations.

The collection of garbage from Door-to-Door is in all 110 Urban Local Bodies in the State with coverage 95.72% of total wards with efficiency in Lifting of Garbage is 98.78%.

This activity is regularly monitored by placing it in Key Performance Indicators. Similarly, lifting of garbage is also monitored by placing it in Key Performance Indicators. Thereby, the ULBs are implementing the primary responsibility of collection, transportation of the garbage in terms of SWM Rules, 2016.

As per the CDMA. report[1] may 2017, the following are the statistics pertaining to Solid Waste Management-

- Solid Waste Generated – 6440 MT/day
- Solid Waste Collected – 5796 MT/ day
- Solid Waste processed – 550 MT/day

The present level of service level benchmarks in solid waste management of Andhra Pradesh is as given below:

Table 1: Status on SWM Benchmark Indicators in AP

S. No.	Indicator	Benchmark (in %)	Present Status
1.	Household level coverage of Solid Waste Management services	100	100
2.	Efficiency of collection of municipal solid waste	100	95.72
3.	Extent of segregation of municipal solid waste	100	
4.	Extent of municipal solid waste recovered/recycled	80	-
5.	Extent of scientific disposal of municipal solid waste	100	-
6.	Extent of cost recovery in solid waste management services	100	-
7.	Efficiency in redressal of customer complaints	80	96
8.	Efficiency in collection of user charges	90	-

5. NEED FOR POLICY

It is pertinent to note that the draft regulations of Solid Waste Management Rules 2016 were published in the year 2015 and the Government of Andhra Pradesh took immediate cognizance of these rules and passed GO 279 on 31st December 2015.

To effectively manage solid waste in the state as per MSW 2016, Government of Andhra Pradesh, vide its G.O279 passed "Uniform guidelines for handling Municipal Solid Waste" in the state. "Uniform Guidelines" addresses collection and transportation part of solid waste value chain. GoAP had also formed Swachha Andhra Corporation to address the treatment and disposal part of solid waste value chain.

Since the SWM rules were only officially notified in 2016 and there has been an order from the NGT for all the states to have in place a Solid Waste Management Policy document, there is a need to consolidate into a single policy document - the various policies and strategies followed by the GoAP in adherence to SWM Rules 2016.

Liveability Index: Ministry of Housing and Urban Affairs (MoHUA) developed a set of "Liveability Standards in Cities" to generate a Liveability Index and Rate Cities. One of the identified categories is "Solid Waste Management" and the following are the three core indicators:

- Household level coverage of municipal solid waste collection
- Efficiency of collection of municipal solid waste
- Extent of municipal solid waste recovered through reuse

Seven Star Rating: Ministry of Housing and Urban Affairs developed a set of "Protocol for Star Rating of Garbage-Free Cities". The star-rating initiative, developed by the Swachh Bharat Mission – Urban will be rating cities on a 7-star rating system based on multiple cleanliness indicators for solid waste management, such as;

1. Door-to- Door Collection
2. Segregation at source
3. Sweeping of public, commercial and residential areas (no visible eyesores on streets)
4. Waste Storage Bins, Litter Bins and material recovery facility
5. Bulk Waste Generators compliance
6. Scientific Waste Processing, Scientific Landfilling and C&D Waste Management
7. User Fees, Penalties, Spot Fines for littering and Enforcement of Ban on Plastic
8. Citizen grievance redressal and feedback system
9. Eradication of crude dumping of garbage and dump remediation
10. Cleaning of storm drains and surface of water bodies
11. Waste Reduction
12. Visible beautification in the city.

Swachh Survekshan: To improve urban sanitation, Minister of Housing and Urban Affairs announced 'Swachh Survekshan' for ranking of cities. To scale up the coverage of the ranking exercise and encourage towns and cities to actively implement mission initiatives in a timely and innovative manner.

"Municipal Solid Waste Management" is considered as one of the initiative under Swachh Survekshan. The following are the set of indicators under Municipal Solid Waste – Sweeping, Collection, Transportation, Processing and Disposal;

- Availability of Automated Systems in Collection and Transportation of MSW
- Efficiency of Waste Collection and Management of Construction & Demolition Waste
- Solid Waste Management in Commercial Areas
- Solid Waste Management in Residential Areas
- Door to Door Waste Collection done and Transported from residential areas
- Efficiency in Transportation of Waste to Disposal/Treatment Sites

With this background, this document will outline, specific to Municipal Solid Waste Management, the Objectives of the State of Andhra Pradesh, the approach to ensuring implementation of SWM Rules 2016, the implementation strategies, monitoring mechanisms and the achievements so far.

The Hon. National Green Tribunal has also laid down directives from time to time to ensure that air, water and soil pollution is avoided in all ULBs to safeguard the protect the environment and resultant ill effects on the citizens. The policy also takes into account the concerns of the Hon.NGT and its directives to ensure that all ULBs in the state of AP adhere to the pollution control norms with respect to handling of municipal solid wastes and safe disposal.

6. OBJECTIVE

Vision

The State of Andhra Pradesh has a vision of transforming Cities and Towns in Andhra Pradesh into neat, clean and litter-free areas, (with special focus on hygienic and affordable sanitation for the urban poor and women) for best in class liveability; health standards; environment, tourism and investment attractiveness.

Goals and Service outcomes: The overall goal is to ensure 100% compliance to the SWM Rules 2016 and related legislations w.r.t to municipal solid waste in all the cities and towns through multi stakeholder partnership approach.

a. Objectives

Achieve and Sustain the SWM Benchmarks and compliance to SWM Rules 2016 and NGT directions by guiding the ULBs for effective implementation of SWM Rules, 2016, NGT directives and other relevant regulations in a systematic manner, with reference to;

- Source Segregation
- Collection
- Transportation
- Treatment and Safe disposal

This can be achieved through various means which includes, but not limited to, the following;

- Establishing guiding principles for all the ULBs to put in place plans for effective Solid Waste Management – especially in Collection and Transport
- Identifying appropriate Resource Recovery and Processing options based on the local contexts.
- Providing the required tools, tackles and equipment to the workforce to be able to implement the plans effectively.
- Ensure centralized and decentralized monitoring and feedback systems are in place to not only monitor the progress but to ensure course correction where necessary.
- Put in place a system for continuous and effective stakeholder engagement necessary to ensure compliance in the short run and sustainability in the long run.

7. POLICY AND STRATEGY CONSIDERATIONS

Policy approach

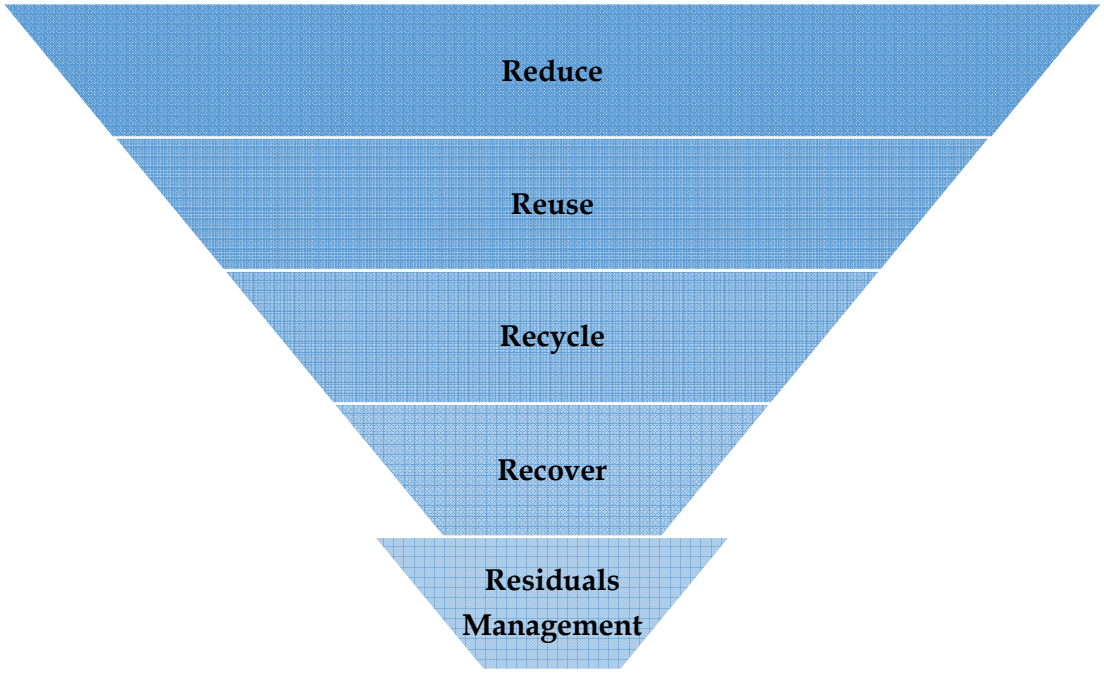
All efforts shall be made to achieve paradigm shift from "Linear Approach" to "A Circular Economy Approach to Solid Waste Management" as an opportunity for developing "Social and Private Sector Entrepreneur" in the SWM; and by encouraging the reputed institutions to take up research and support the ULBs in this endeavour.

8.2 Zero Waste & Circular Economy Approach:

Zero waste approaches aim to reduce and ultimately eliminate garbage. The 5 R pollution prevention hierarchy is a useful planning tool for moving towards zero waste. Once all achievable opportunities at a higher level have been taken, only then should the next level be looked at. For example, opportunities for recycling should be explored only after all opportunities for reduction and reuse of materials have been exhausted.

Benefits:

- Make waste management affordable, as the overwhelming majority of the collected waste will be recycled
- Reduction in the disposal costs; as minimum waste will be reaching the landfill and reduce the pressure on the land requirements for land fills
- Generate revenue from the sale of recyclable materials;
- Generate revenue from the sale of compost



Policy Commitment:

The Andhra Pradesh State Government is committed in providing clean and safe cities/towns by giving priority for the effective implementation of Solid Waste management Rules 2016 and by extending necessary support to the Urban Local Bodies (ULBs).

Policy aims at achieving the Service Level Benchmarks (SLBs) fully by 2023 and achieving reduced quantity of solid waste reaching the landfill and not more than 20%; over a period of 5 years

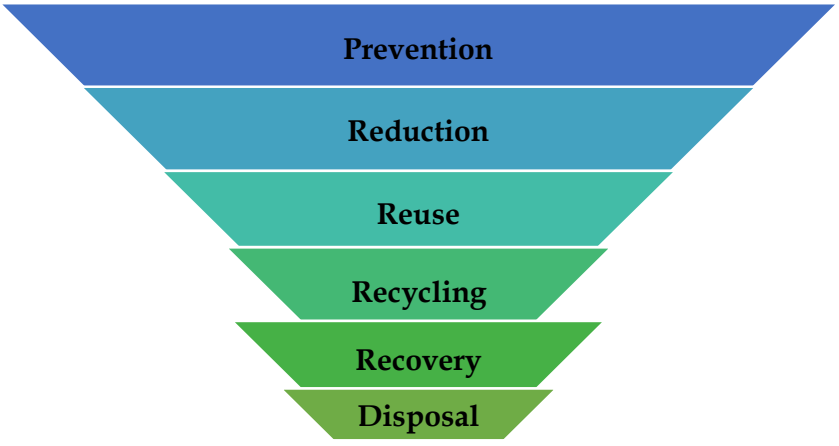
Efforts shall be initiated for having ULB wise SWM Plan including the treatment and landfill development for rejects. In case of non-feasibility for any ULB due to land non-availability, then only to plan for regional or cluster development

For achieving the said goal, the State Government extends all the support to ULBs:

- In achieving the source segregation;
- Enforcing for establishing decentralized on-site segregation by the bulk generators and listed entities in the Rules;
- Encourages for establishing Dry Resource Centers (DRCs);
- Involvement of Self Help Groups (SHGs) for encouraging segregation at household level and onsite composting and creating livelihood in the sanitation field; especially for women;
- Increasing accountability at all levels in line with the "Duties" stated in the notification;
- Encourages the participation on PPP mode;
- To increase the sustainability of the SWM implementation and in lines with the accepted principle of "Polluter Pays", ULBs to introduce the user fees and to review at least once in two years;
- Developing framework for introducing incentives and penalties;
- Encourages the public and private sector for Corporate Social Responsibility (CSR) funding; and
- Creating the business by enlisting the technology providers.

Waste Hierarchy:

While formulating the policies and programs, thrust shall be given to the following waste management hierarchy by all the concerned:



PREVENTION BEING THE MOST PREFERRED OPTION AND THE DISPOSAL AT THE LANDFILL BEING THE LEAST

Regulatory Compliance:

The ULBs shall incorporate the provisions of SWM Rules, 2016 in their bylaws for effective implementation and to be completed within a period of six months. *(Action: ULBs).*

The ULBs shall take necessary action for obtaining authorisation and the provisions of SWM Rules, 2016 for setting up waste processing, treatment or disposal facility, if the volume of the waste exceeding 5 MT per day including sanitary landfills from the Andhra Pradesh State Pollution Control Board (APSPCB) *(Action: ULBs)*

ULBs shall prepare and submit annual report in form IV by 30th April of the succeeding year to the Commissioner and Director of Municipal Administration (CDMA) *(Action: CDMA, ULBs)*

The CDMA shall submit the annual report of ULBs to the Principal Secretary, Municipal Administration with a copy to Member secretary of APSPCB by 31st May of every year *(Action: CDMA, ULBs)*

The District Collector shall review the performance of the local bodies at least once in a quarter on the implementation of solid waste management rules and take corrective measure in consultation with CDMA *(Action: District collectors).*

Planning:

- The Town Planning Department to ensure in the master plan of the ULBs regarding provision for setting up solid waste processing and disposal facilities except for the ULBs who the members of common waste processing facility or regional sanitary landfill for group of ULBs *(Action: DTCP).*

- The ULBs shall complete the process of identification and allocation of suitable land to the local bodies within three months for setting up of processing and disposal facilities of solid waste and incorporate the same in the master plan (land use plan) within a period of three months. *(Action: ULBs)*

- All the SEZ, Industrial Estate and Industrial parks shall earmark 5% of the total area of the plot or minimum 5% of plot area or sheds for recovery and recycling facility, in case of upcoming once. In case of existing SEZ / IE / IPs the APIIDC and APSPCB to study the feasibility for incorporating the same depending upon the unallotted plots and to ensure incorporating the provisions in the master plan. APSPCB to ensure the compliance through their concerned management under the provisions of the Water Prevention & Control of Pollution (P&CP) Act 1974 as amended and the Air (P&CP) Act 1981 as amended. *(Action: SAC, APIIDC & APSPCB).*

- The CDMA to complete the need assessment study for establishing common regional sanitary land fill for a group of ULBs falling within a distance of 50 km (or more) from the regional facility on a cost sharing basis and ensure professional management of such sanitary landfills. *(Action: SAC & CDMA).*

- The CDMA in consultation with APSPCB to notify the buffer zone maintained for the solid waste processing and disposal facilities of more than 5TPD, within a period of three months *(Action: CDMA).*

- The ULBs shall prepare solid waste management plan in line with the SWM Rules, 2016 and State Solid Waste Management Policy within a period of six months. The plan shall consist of the following components: *(Action: ULBs)*

- Arrangements for door to door collection of segregated solid waste from all Households including slums and informal settlements, Commercial, Institutional and Other non-residential premises;
  - System to recognise organisations of waste pickers or informal waste collectors and promote integrating in the solid waste management Plan;
  - Facilitate formation of SHGs, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;
  - Setting up of Dry Resource Centers/Material Recovery Facilities (MRF) or Secondary Storage Facilities with sufficient space for sorting of recovery materials;
  - To inventorize the vegetable/fruit/flower/meat/poultry /fish market and to study the feasibility for promoting decentralised compost plant/Bio-methanation plant at suitable locations in the markets or in the vicinity of the markets;
  - Inventorize parks and gardens and to study the feasibility for treating horticulture waste separately;
  - Study the requirement for treating segregated bio-degradable with the processing facility like compost plant, bio methanation plant or any such facility;
  - To prepare street sweeping plan of daily, or on alternate days or twice a week depending on the density of the population, commercial activity and local situation.

Stakeholder Engagement:

Involvement of citizens especially for achieving segregation at source is very important. The ULBs to promote home composting, bio-gas generation systems, decentralised processing of waste at community level; subject to control of odour and maintenance of hygienic conditions around the facility.

- To inventorize the manufacturers or brand owners of disposable products, in a phased manner, such as tin, glass, plastic packing and sanitary napkins and diapers and seek financial assistance to the ULBs for establishing the waste management system. The identified manufacturers and brand owners to be encouraged for taking up CSR programs in waste management system and support the ULBs. The progress report shall be placed before state level advisory board periodically *(Action: SAC, CDMA)*.

- All the ULBs are required to implement a scheme for registration of waste pickers and waste dealers and complete within a period of three months *(Action: ULBs).*

- The ULB shall build the capacities of RWAs on solid waste management and the technologies available for decentralised processing facilities *(Action: ULBs).*

- The state shall empanel the technology vendors with due focus on decentralised sanitation facilities *(Action: SAC, CDMA).*

Decentralised facility:

All the ULBs shall inventorize the bulk waste generators (Waste generation rate exceeding 100kgs per day) to ensure segregation at source and also to explore the possibility for decentralised facility for handling wet waste and to prepare action plan within six months. The progress shall be reviewed periodically in the state level advisory board *(Action: ULB, SAC - CDMA to review).*

- Inventorize the bulk waste generators (Waste generation rate exceeding 100kgs per day) / residential welfare and market associations / gated communities and institutions more than 5000 sq.m of the area / hotels and restaurants to ensure the segregation of waste at source for handing over recyclable material to either the authorised waste pickers or authorised recyclers and to assess the feasibility for developing on site composting / bio methanization for treating bio degradable waste *(Action: ULBs, SAC, CDMA to review).*

- It is proposed to introduce incentive a property tax rebate for those bulk generators implementing on-site segregation and treatment facility for full quantity of waste generated *(Action: CDMA).*

User Fee:

The ULBs shall notify the user fee for different categories once in two years. The user fee shall be informed to the public through press statement. The indicative user fee is given below and the ULBs can adopt as per their requirements.

Table 2: Showing Proposed SWM User Fees to be levied in AP

S. No.	Category of Waste Generator	User Fee per month for D-2-D Collection
1.	Individual Household	Rs. 30/-
2.	Apartments	No. of units * Rs. 30/-
3.	Commercial establishments, shops, eating places (Dhabas /Sweet shops Bakeries/coffee houses/Fastfood outlets etc.)	Rs. 500/-
4.	Guest House	Rs. 750/-
5.	Hostels	Rs. 750/-
6.	Hotels(Unstar)	Rs. 750/-
7.	Hotels (Up to 3 star)	Rs. 1500/-
8.	Hotels (over 3 star)	Rs. 5000/-
9.	Educational Institutions Government	Rs. 250/-
10.	Educational Institutions Private	Rs. 1000/-
11.	Offices Government	Rs. 250/-
12.	Offices Private	Rs. 1000/-
13.	Cinema Hall	Rs. 1500/-
14.	Multiplexes	No. of Screens*Rs.1500/-
15.	Marriage / Function and Banquet Halls	Rs. 3000/-
16.	Bulk generator (Generating more than 100 kg per day and not listed above)	Rs. 3000/-
17.	Healthcare institutions without bed*	Rs. 750/-
18.	Healthcare institutions with beds upto 100*	Rs. 1500/-
19.	Healthcare institutions above 100 beds*	Rs. 5000/-

Note: *The user fee is not applicable in case of adopting zero solid waste system, which should be verified by the competent person of the ULB.*

Penalties:

The ULBs to issue a press notice prohibiting the open burning of waste on lands and at landfill site. Any person or body responsible for such burning shall reliable to pay any person or body responsible for such burning, shall be liable to pay environmental compensation of Rs. 5,000/- (Rs. Five Thousand only) in case of simple burning, while Rs. 25,000/- (Rs. Twenty-Five Thousand only) in case of bulk waste burning. Environmental compensation shall be recovered as arrears of land revenue by the competent authority in accordance with law[2].

ULB shall encourage the citizens for bringing to the notice of the ULB in case of any one indulging in the open burning. The details of the penalties levied by the ULB shall be reported on monthly basis to the CDMA.

- Whoever fails to intimate about organizing an event or gathering of more than 100 persons or fails to ensure segregate the waste at source and hand over to segregated waste to waste collector or agency specified by the ULB, shall be liable to pay the penalty of Rs 5,000.00 plus double the clean-up cost as estimated by the competent person of the ULB.

- ULBs to frame byelaws and prescribe criteria for levying spot fine for persons who litters or fails to comply with the provisions of these rules.

[2] NGT Judgement Pronounced on: 22nd December, 2016

Table No.3 Indicating the model criteria for levying fines:

S.No.	Category	Fine / day
1.	Littering in the public place	Rs. 200/-
2.	Bulk waste generators (Rule 3 (8))	Rs. 1000/-
3.	Residential welfare and market association (Rule 4 (6))	Rs. 1000/-
4.	Gated communities and Institution with 5000 Sq.m (Rule 4(7))	Rs. 1000/-
5.	Hotels and Restaurants (Rule 4(8))	Rs. 1000/-
6.	Healthcare establishments *	Rs. 1000/-

- The ULBs shall notify competent authority and develop transparent procedure for levying fines. Photographs can be taken capturing the violation and shall be communicated to the higher-ups and to the violator immediately, preferably from the site itself.

- In case of mixing of Bio-medical waste with non-bio medical waste, the same shall not be lifted. Non-biomedical waste as defined vide Bio-Medical Rules 2016. In case of non-segregation of waste properly, the ULB shall issue a notice to the healthcare facility with a copy to APSPCB requesting them to initiate appropriate action under the provisions of Bio-medical Rules, 2016.

- Non-biomedical waste as defined vide Bio Medical Rules, 2016. In case of Non-Segregation of waste properly, the ULB shall issue a notice to the healthcare facility with a copy to APSPCB requesting them to initiate appropriate action under the provisions of Bio-medical Rules, 2016.

Health and Safety

Protecting health and safety of all the workers handling solid waste is to be given priority. ULBs shall ensure Personal Protective Equipment (PPE) including uniform, florescent jacket, hand gloves, rain coats appropriate foot wear and mask to all workers handling the solid waste and to ensure the same or the used by the workers *(Action: ULB).*

Special Permissions

ULBs shall introduce a permit system for organizing an event or gathering of more than 100 persons at any unlicensed place. The organizers shall submit solid waste management and area clean-up program after the event is over, atleast three working days in advance of the event.

Encouraging usage of Refused Derived Fuel (RDF)

The APSPCB shall inventorize the units using fuel and located within 100 Kms from solid waste-based RDF plants and to ensure to replace at least 5% of their fuel requirement with RDF. The progress shall be reviewed periodically in the state level advisory board *(Action: APSPCB).*

Separate restrictions for the land fill management

All efforts shall be made to allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill. All efforts shall be made to restrict maximum quantity of 20% of the solid waste reaching the landfill.

Existing unscientific dump sites

ULBs to inventorize all the existing unscientific dumpsites and prepare plan of action for Bio-mining or Bio-remediation or scientifically capping as per the feasibility. The progress shall be reviewed periodically in the state level advisory board *(Action: ULBs).*

Awards

To enhance the involvement of the stakeholders and to recognise the good performance, the Andhra Pradesh state government proposes to introduce an annual award scheme in the following categories and awarded through Swachh Andhra Corporation & CDMA.

- **At State level awards:** The CDMA shall develop key performance indicators and a scheme for recognising the best ULB separately for corporation and municipalities.

- **At ULB level:** To recognise onsite solid waste treatment facility developed by Institutions, Commercial Establishments, Hotels & Restaurants, Hospitals, Apartments, Gated Communities, IALAs and Educational Institutions, to encourage onsite segregation and disposal resulting into reduced quantity reaching the secured landfill site.

The above awards are intended to be given on **22nd April of every year (World Earth Day) or 5th June on World Environment Day.**

8 ROLES AND RESPONSIBILITIES OF MA & UD DEPARTMENT

The Municipal Administration and Urban Development department of the GoAP set out to achieve the objectives by assigning clear roles and responsibilities to the Commissionerate and Directorate of Municipal Administration, the Swacch Andhra Corporation and the Urban Local Bodies. The list of roles and responsibilities broadly include;

Directorate of Municipal Administration

The Directorate of Municipal Administration, Andhra Pradesh, has introduced Operational Guidelines for Micro Planning, Work Rationalization and Outsourcing of Work Packages and three RFPs i.e.,

- For Residential Micro Pockets Management
- For Commercial & Bulk Waste Management
- Mechanical Sweeping, Road Sweeping & Drain Cleaning.

The Directorate of Municipal Administration has to take up the following responsibilities

- Directing all the 110 ULBs in the state to take up implementation of Uniform Guidelines for SWM through GO 279.
- Funding urban local bodies to take up Health and Sanitation related work.
- Provision of O&M funds to ULB to maintain collection vehicles and treatment infrastructure
- Real-time Monitoring and issuing directions from time to time

Swachha Andhra Corporation

- To undertake waste to energy projects and waste to compost projects under public private partnership for scientific processing and disposal of municipal Solid waste
- To tackle the Construction and Demolition waste, C&D waste processing plants are under development through public private partnership mode.
- Reclamation of municipal old dump sites through process of bio-mining.
- Additional responsibilities are: Procurement of tools, vehicles like compactors, loaders, manual sweeping machines etc., equipment, technological solutions and asset.
- Construction of Individual Household Toilets, Community Toilets, Public Toilets and Faecal Sludge Treatment Plant (FSTP)

Urban Local Bodies

- Implementing Uniform Guidelines in the ULB.
- Cleaning of the streets and supervision of sanitation
- Lifting of garbage and dumping of the same in dumping yard
- Spraying disinfecting materials under anti malaria schemes
- Maintenance of vehicles, diesel bunks, vehicle sheds, and workshops
- Managing Permanent Sanitation Staff on rolls
- Managing Work-outsourcing Contracts

9 PROGRAMME MANAGEMENT THROUGH PMU & SCIMMU

To enable successful implementation of the stated objectives, the State has proposed and undertaken a multi-pronged approach.

- Setting up of a State Level Programme Management Unit (**PMU**)to ensure work outsourcing happens in all the ULBs through proper demarcation of micro pockets, on boarding of contractors for collection and transportation, allocation of PH workers to micro pockets.

- Managing Stakeholders through a multi-pronged approach for Capacity Building, Institution Building and Information Education and Behaviour Change through State Capacity Building & Information Education Behaviour Change Communication Mission Management Unit (**SCIMMU**)

Work outsourcing of C&T Activities

Instead of taking workers on contract basis for deployment in PH activities, ULBs are required to shift to a system of outsourcing complete work packages to any registered legal entity/ society / contractor / agency that are covered by income tax and other statutory regulations. The system of outsourcing complete work packages is meant for getting the following benefits to the ULBs as measurable operational results;

- Better delivery of services.
- Compliance to MSW rules & NGT directives.
- Availing better technology, management methods and capital through private, social sector and CSR participation
- Overall positive impact on the living environment by mitigating pollution and environmental hazards.

Outsourcing complete work packages has several advantages over the system of engaging workers only on contract basis. The invitations / Request for Proposals (RfP) should include responsibilities of the outsourced partner for satisfactory execution of the works as per the objectively verifiable service level indicators.

Work packages to be outsourced should be categorised as per following categories:

1. Outsourcing residential area and main roads sanitation, solid waste collection and drains cleaning
2. Outsourcing of commercial, institutional and bulk solid waste and c&d collection and transportation
3. Outsourcing Mechanical Sweeping

Micro Pocket Planning and Management

A micro pocket is the smallest work area and the basic sanitation unit in a ward / division for maintaining sanitation and handling of solid waste in primarily residential areas. A continuous area containing between 300 to 350 waste generating units made of households, shops and petty commercial units can be demarcated as a residential micro pocket. Any type of a dwelling structure, a slum house or a dwelling unit situated in a multi-floor housing complex (of not more than 20 households) can be considered as a residential area waste generator. Along with the residential areas, adjoining main roads and the drains situated in those main roads (as per the local situation) also shall be included for undertaking micro pocket management activities

The Sanitation and Solid Waste Collection Activities in a Residential Micro Pocket include:

1. Collection of source segregated solid waste (wet, dry and hazardous waste separately) at the gates / doors of the households, shops, vendors and public places - Daily
2. Manual sweeping of streets, footpaths, pavements and open spaces and removal of any litter in these areas, and removal of animal carcasses - Daily
3. Cleaning of and removal of garbage, litter, silt or blocks from the street side shallow surface drains – Daily
4. Sweeping of main and arterial roads and all the abutting road surfaces, foot paths and paved areas – Daily
5. Sweeping and Litter Collection in Parking Lots, Foot Over Bridges, Bus Shelters, Sub Ways, Traffic Islands, and any other structure abutting the main roads – Daily
6. Cleaning of Shallow Surface and Storm Water Drains (other than underground sewerage drains)
7. Observe the places of water logging and water stagnation and clear the clogging garbage and silt for ensuing free flow of water.
8. Disinfectant spraying, shrubs cutting, removing earthen heaps and or any other vector control activities as specified by the ULB.
9. Transfer of the collected waste from all the above activities to the points of designated locations such as Transfer Stations, Compost or Material Recovery Yard, Landfill Facility - Daily

Primary collection should be specific to micro pocket. Election ward should be divided into pickpockets of 300-350 households each. 2 PH Workers should be dedicated for each residential area micro pocket. In case if a micro pocket includes main road sweeping and drains cleaning activities an additional worker should be allocated in such micro pockets.

Activities to be taken up based Micro Pocket Planning

Primary Collection

The primary collection would be carried out as per Uniform Guidelines introduced by Government of Andhra Pradesh as G.O 279.

1. Collection of source segregated solid waste (wet, dry and hazardous waste separately) should be carried out daily at the gates / doors of the households, shops, vendors and public places.
2. Door to door collection of waste should be done using Push Carts or Tricycles
3. 6-8 number of 60-80 litre HDPE waste bins with lid should be allocated to each of the push cart / tricycle for collecting source segregated waste.
4. 2 number of poly ethylene tarpaulin (80 litres) bags should be allocated for collecting source separated dry recyclable waste.
5. Debris, drain silt, road dust, and other inert should be collected in separate vehicle (other than the vehicle for wet and dry waste collection) at a separate time to avoid mixing of the silt waste with wet organic and dry recyclable waste. In the cases where Micro Pocket / Ward streets are wide enough for the movement of 3 / 4 wheeler motorized vehicles, these vehicles can be used for primary collection. In this case, these vehicles are required to serve more than one micro pocket / ward depending on the route length and waste volumes required to be covered.
6. To mitigate pollution and achieve fuel cost efficiency, it is advised that the ULBs have push carts or battery operated autos for primary collection depending on the prevailing street / road conditions.
7. It is also advised that diesel autos should be phased out gradually wherever they are being used for primary collection as they are most inefficient in terms of operational costs. In their place, battery operated autos can be planned.

8. In the case of all motorized vehicles, based on the volume of the carrying container, the container should be permanently partitioned with metal separators (welded to the container) in the ratio of 80% (for wet waste) and 20% (for dry high value recyclables

Street Sweeping and road side drain cleaning

The Street Sweeping and road side drain cleaning would be carried out as per Uniform Guidelines introduced by Government of Andhra Pradesh as G.O 279. Plans for efficient and effective street cleaning include:

1. Street sweeping, drain cleaning and disinfectant spraying in a micro pocket should be carried out by same 2 or 3 PH allocated in respective micro pockets.
2. Manual sweeping of streets, footpaths, pavements and open spaces and removal of any litter in these areas, and removal of animal carcasses should be carried out daily
3. Cleaning of and removal of garbage, litter, silt or blocks from the street side shallow surface drains should be carried out daily
4. Sweeping of main and arterial roads and all the abutting road surfaces, foot paths and paved areas should be carried out daily
5. Sweeping and litter collection in parking lots, foot over bridges, bus shelters, sub ways, traffic islands, and any other structure abutting the main roads should be carried out on daily basis.
6. Timely cleaning of shallow surface and storm water drains (other than underground sewerage drains).
7. Disinfectant spraying, shrubs cutting, removing earthen heaps and or any other vector control activities are to be carried out as specified by the ULB officials.
8. Transfer of the collected waste from all the above activities to the points of designated locations such as Transfer Stations, Compost or Material Recovery Yard, Landfill facility should be carried out on daily basis.

Secondary Collection and Transportation

The Secondary Collection and Transportation would be carried out as per Uniform Guidelines introduced by Government of Andhra Pradesh as G.O 279. Secondary Transportation Vehicles such as Battery Operated Autos (if available)/ Light commercial vehicles (LCV) / Tractor Trailers / Tippers / Heavy Loaders / Compactors should be used for transporting the collected wastes from the primary collection vehicles to the designated transfer stations / storage yards, as planned in the ULB.

Plans for efficient and effective secondary collection and transportation include:

a. To ensure 100% coverage of the allotted area, the primary collection vehicles (waste collectors) are expected to make two or three trips in their micro pockets to collect the solid waste and transport it to the transfer points.

b. These vehicles should be used in an optimized manner to cover services to a cluster of Micro Pockets/ Wards.

c. Multi-handling of waste and waste touching the ground between primary collection and secondary transportation is prohibited as the success of the micro-pocket management depends on proper transfer without the waste touching the ground and multi-handling and avoiding the bin system, as the bin system is inefficient and gives possibility for the residents to dump mixed waste in and around the bins.

d. A suitable route planning (for secondary transportation) should be done for directly transferring the waste from the primary collection vehicle (push cart / tricycle / autos) into the secondary transportation vehicle.

e. For each Micro Pocket and Ward, transfer points and timings at which the secondary transportation vehicle can arrive at the transfer points should be identified and planned and synchronized.

f. The secondary transportation routes are to be planned to suit collection of waste from the adjoining micro pockets also to optimize the route plan and vehicle utilization.

g. Arrangements for electronic weighing machines are to be made in the transportation vehicle, so that the waste collected from the micro pockets will be weighed for each round of transfer and data recorded by the driver / loader and the responsibility for this activity should be fixed.

h. The secondary transportation vehicles are to be planned to ensure that they make 2 trips to collect the solid waste (both wet and dry in separate partition) and 1 trip to collect drain silts and road sweeps.

i. The required number of vehicles should be suitably planned for each circle and the Sanitary Supervisor will be responsible for optimum utilization of the vehicle, ensuring that vehicle operations with right quantities of fuel utilization are carried out.

SCIMMU activities

SCIMMU has two state level agencies;

- CDD Consortium for developing & designing Capacity Building content for Training of all service providers (Over 35000+) in Six Focus groups starting from the top i.e, Public Representatives & Commissioners to the Field level PHW Workers in a blended learning approach (Combination of Online and Class-room & Field level Demos & Visits)
- Adepto Consortium for developing and designing Institution Building Strategy and Sustained IEBC for Focus Group 7 Community Volunteers
- 13 District Level agencies oversee the CB & IB-IEBC activities (Over 3000+ Ward level Societies, 110 ULB level, 13 District level and one state level federation is being built to bring about sustained Awareness on SWM and ensure community involvement.

10. Monitoring and Evaluation

10.1 Real Time Monitoring System (RTMS)

The RTMS system should primarily involve **GPS Tracking of Collection Vehicle**, **RFID scanning of workers at every household gate** as well as **weighing of the segregated waste** categories with respect to every household attended, to be able to **monitor and ensure service delivery to every gate within the micro-pockets in real time**. This database system further **enables analysis and assessment of performance of the sanitation workers as well as level of segregation attained in respective micro-pockets**. It also allows fast reporting by any third-party service provider to the employees, with added transparency.

The key performance Indicators (KPI) on the real time data dashboards of the RTMS system includes:

- Service Coverage
- Waste Segregation
- Waste weighment
- Service results[Neatness and Cleanliness]
- Attendance of sanitation workers
- Worker payments
- Protective Wear Usage
- Citizen Grievance Redressal

Blackspots Monitoring and Management System (BMMS):

Blackspots refers to the concentrated zones of littering of solid waste, which this system aims to eradicate, by prompt reporting and redressal of such spots by the BMMS. It should feed master database, preferable at the state level and involve reporting of a blackspot with photographs and its geographical coordinates, stored in the database classified under 8 categories and will be under the supervision by sanitary inspectors and municipal commissioners.

The system must involve the Identification, prioritization and daily work list made out of the reported blackspots for the person in-charge, to delegate each of these to respective sanitation workers. The dashboard should also give out information on the status of redressal of the reported blackspots at the state level.

A list of parameters that must be published on the real time dashboard on the portal are given as follows for reference:

- **Weightment:** Records and DIsplays the weights recorded at every gate for segregated categories, primarily the following
    - **Wet:** in terms of kgs and percent of the total
    - **Dry:** in terms of kgs and percent of the total
    - **Others:** in terms of kgs and percent of the total
    - **Total:** Sum total of all the waste from every gate in terms of kgs
- **Attendance:** Records and Displaysthe attendance of the sanitary workers responsible for the solid waste management system.
    - **Present vs Absent:** in terms of number and percentage of the total
- **Grievance Redressal:** Records and Displays all the grievances recorded and well as the status of progress respectively.
    - **Total reported vs Total Addressed:** in terms of number and percent of the grievances addressed with respect to total grievances recorded.
- **Blackspots:** Records and Displays the concentrated zones of littering of solid waste that have been reported and the overall status of their redressal
    - **Total Black spots vs Total Green(Addressed) spots:** in terms of number and percent of addressed black spots to reported black spots

- **Vehicle and Transportation:** Records and Displays the attendance and performance with respect to attendance and performance of collection vehicles
    - **Total Vehicles:** in terms number of total vehicles available
    - **On duty:** in terms of number or percentage of vehicles on waste collection duty to total available vehicles
    - **Delayed:** in terms of number or percentage of delayed vehicles
    - **Collection Points addressed vs Collection points Remaining:** Sum total of addressed collection points to the Total number of collection points in terms of number and percentage
- **Coverage:** Records and Displays the coverage of Solid waste collection services at Micro-pocket level; in terms of number and percentage
    - **Total Micropockets:** Micro pockets covered to Total Micro-pockets, in terms of number and percentage
    - **Total Households:** Households covered to Total Households, in terms of number and percentage
    - **Average Time per Micro pocket:** in terms of minutes or hours taken to cover each micro pocket
    - **Households Covered:** in terms of number and percentage of households covered

The same parameters shall be addressed under the real-time status section on the dashboard, under same heads with the Coverage, Grievance, Blackspots and Vehicles sections in terms of percentage as well. At the same time the dashboard, should have individual tabs dedicated to each of these heads with detailed information of all the days recorded.

Hardware Installation and Incorporation

The RFID system should include a receptor at every gate and an card with every sanitation worker, which will be tallied ensuring the worker's attendance at every gate, and would be an indicator of solid waste collection service delivery.

The GPS tracking system attached to all the collection vehicles, shall capture the route and timings of the vehicles, as well as weighment information recorded and displayed on the dashboard, in real time.

11 TECHNOLOGY OPTIONS - PROCESSING & TREATMENT OF MSW

Treatment and Landfill Operation

The integrated solid waste management (ISWM) framework should be used as a guide for selecting most appropriate technologies for managing MSW. ISWM plants typically have pre-processing facilities to separate organics from recyclables and other high calorific waste. The organic waste is usually composted aerobically to produce manure or processed an aerobically (in absence of air) for production of energy. Recyclables are separated and sent to wholesalers for further supply to recycling facilities. High calorific wastes are then baled or processed and can be used as fuel or co-processed in cement plants.

MATERIAL RECOVERY FACILITY

A material recovery facility (MRF) is a place where non-biodegradable or recyclable solid waste collected from the doorstep is segregated, sorted and various components of recyclable waste recovered from it for resale. The MRF accepts mixtures of waste fractions (non-biodegradable or recyclable) and its configuration depends on the several factors like the type, quantity and quality of incoming waste materials. Here the material is basically segregated into different streams of waste fractions (paper, plastic, packaging paper, bottles etc.) which is further sold to intermediaries who supply bulk material to the recycling industries. MRFs also require large storage spaces to temporary store sorted recyclables which can be made available to recyclers in bulk for improved resale value. Depending on the scale of operations and the level of mechanization in the facility, MRFs may be classified as manual or mechanized. Small scale units employ manual MRFs wherein manual sorting process is being carried and it's typically owned, operated and managed by the informal sector. Large scale units have mechanized MRFs with sophisticated systems and equipment that enable efficient separation of large quantity of material into different fractions.

Composting

After waste minimisation and recycling systems, the ISWM hierarchy indicates adoption of resource recovery strategies and composting as the third preferred waste management practise, ensuring that waste is processed appropriately to facilitate further use of the material. Composting is a controlled aerobic process of biologically "digesting" the MSW, so it may be recycled for other purposes—plant nutrient, stabilization of soil in remediation process, or soil amendment for recovery of poor soils. Compost production can be carried out at the decentralised level (home composting, bin composting, box composting, vermicomposting, in vessel composting) or at a centralised level (windrow composting, in vessel composting, aerated static pile), depending on the feasibility of implementation. Both processes require significant pre-processing, and only segregated organic matter can be composted. Compost produced should meet with quality criteria specified by the Fertilizer Control Order (FCO), 2009 and 2013. A market for the compost should be ascertained before sizing the compost plants.

Composting in Andhra Pradesh

Swachha Andhra Corporation under the guidance of Government of Andhra Pradesh has launched a programme to convert municipal solid waste into compost. This programme will be implemented initially in 41 urban local bodies. GoAP is aiming to generate 430 TPD compost. As per the scheme, Land will be given to the interested private parties to set up a plant of desired feasible Technology as per MSW Rules 2016. External infrastructure like access road, water and power connection etc. to these MSWM projects will be provided by ULB. ULB is obliged to deliver daily segregated waste to the plant.

The compost produced would be purchased by Nodal Agency M/s. NFCL at Rs. 2500/- per Ton for which Tripartite Agreement will be entered between developer, NFCL. The bidder may choose to directly take up the sale of compost, in which case Rs 1500/-per tonne of compost generated will be given as marketing subsidy. Department of Agriculture (GoAP) and MARKFED will provide support for marketing of the generated compost. Tipping (processing) fee will also be paid to the developers by Swachha Andhra Corporation.

Waste to Energy

Where material recovery and composting from MSW is not possible or desirable due to local conditions or because of the nature of waste, recovery of energy from MSW is suggested as a feasible alternative. When high calorific value fractions of MSW are either incinerated (thermal process) or biodegradable fraction of MSW is processed anaerobically (biomethanation), the resultant energy, either as heat (incineration) or biogas (methane) can be reused either directly or converted to electricity using appropriate generators. Sale of this energy should result in the financial viability of waste to energy systems. Where the tariff of power is not high enough to ensure financial sustainability of the plant, a tipping fee may be considered by the ULB. Appropriate care should be taken to ensure continued and stable supply of the waste for achieving requisite economies of scale. Proper environmental checks should also be in place to meet with stringent norms for incineration. Several technological options are available, however a technology should be selected depending on the quantity, quality of waste to be processed, land requirement, financial implications etc. Where national legislation does not prescribe norms for emissions from different waste to energy technologies, the Central Pollution Control Board (CPCB) or State Pollution Control Board (SPCB) may consider accepted international emission control norms.

INCINERATION

Incineration is a waste treatment process that involves combustion of waste at very high temperatures in the presence of oxygen, resulting in the production of ash, flue gas, and heat. It is feasible for unprocessed or minimally processed refuse besides the segregated fraction of the high calorific waste. The potential for energy generation depends on the composition, density, moisture content, and presence of inert in the waste. About 65%–80% of the energy content of the organic matter can be recovered as heat energy, which can be utilized for thermal applications. Incineration is an option to be considered only after implementing suitable material recycling and recovery systems, or where other better options for processing are not feasible and land availability is a problem. Typically, only cities which are able to supply at least 1,000 tonnes per day (TPD) of waste should venture to install waste-to-energy plants. However, incinerator plants have the potential to cause significant environmental impacts through emissions and fly ash if plants are not operated efficiently and if appropriate emission control measures are not adopted. Therefore, due care should be taken to comply with operating and emission standards as prescribed under revised SWM Rules, 2016 along with adoption of emission abatement technologies

BIOMETHANATION

Biomethanation is the anaerobic (in the absence of air or, more specifically, free oxygen) digestion of biodegradable organic waste in an enclosed space under controlled conditions of temperature, moisture, pH, etc. It is considered one of the most technically viable option for the Indian MSW due to MSW's high organic and moisture content. Biomethanation plant requires a consistent source of degradable organic matter free from inert material as well as a sustainable demand for the generated biogas at appropriate economic conditions.

Biomethanation plant can be operated at decentralised level (up to 5 TPD) or centralised level depending on the feasibility of the implementation and waste inflow. The overall performance of the bio methanation plant is greatly influenced by the input feed specification, and the plant requires segregated biodegradable MSW (e.g., hotel and restaurant waste, market waste) for optimal plant performance. The homogeneity of the feed material is an important parameter from the efficiency viewpoint.

REFUSE DERIVED FUEL

Refuse-derived fuel (RDF) refers to the high calorific non-recyclable combustible fraction of processed MSW, which is used either as a fuel for steam and electricity generation or as alternate fuel in industrial furnaces and boilers. The composition of RDF is a mixture that has higher concentrations of combustible materials than those present in the parent mixed MSW. RDF should preferably be co-processed in cement plants. Co-processing of RDF in steel industry and for power generation is also indicated, but yet to be proven in India. Internationally, the co-processing of RDF for power generation is technically proven and widely practised as a part of their waste management strategy; however, not much information is available for co-processing of RDF in steel sector.

WTE in Andhra Pradesh

Swachha Andhra Corporation under the guidance of Government of Andhra Pradesh has opted to go forward with waste to Energy treatment technology (4MW-15MW) for 10 clusters in the state. Swachha Andhra Corporation has selected Public Private Partnership (PPP) in a form of DBFOT (Design Built Finance Operate and Transfer) Model for to proceed with the setting up of treatment plants in the state. Construction period of 1 year and 8 months and concession period of 25 years to operate the plant will be given to selected agencies.

Further on, ULB is obliged to demarcate and handover 10-30 Acres of land for setting up the facility and also to deliver daily waste to the plant. In the concession period i.e. 25 Years, APDISCOM is obliged to buy power from the project at a prefixed rate.

Table No-3: Technology options for MSW processing & Disposal

S. No.	Population	Waste Generation	Technology Options
1.	Above 2 Million	> 500 TPD	• IWP comprising -BM +CC+ RDF • W to E plant for power, where wastes exceeds 500 TPD based on: gasification, pyrolysis, incineration and mass burning. • RDF to cement industry • Plastic to fuel oil
2.	1 M to 2 Million	200 – 500 TPD	IWP-BM, CC + RDF as feed stock to power plant / cement industry. Plastic to fuel oil
3.	1 Lakh to 10 Lakh	100 – 200 TPD	IWP-BM, CC + RDF as feed stock to power plant / cement industry. Plastic to fuel oil
4.	50,000 to 1 Lakh	50 – 100 TPD	BM, VC or CC RDF
5.	Less than 50,000	< 50 TPD	BM , VC / CC and RDF

Key messages for decision-makers

Ensure that selected MSWM technologies fit to the local conditions. Check for successful and proven project references and experiences in other ULBs. Seek opinions of independent experts. Consult the State Pollution Control Board (SPCB) for validation of the proposed technology.

12. PRIVATE SECTOR ENGAGEMENT

i. **Possibility of funding:** The possibility of funding from external funding agencies shall be explored by the government.

ii. **Options of Public Private Partnership (PPP):** All efforts will be made to explore the possibility of projects being implemented with private capital by using various procurement models based on PPP.

The models may be nay one or combination of following:

- DBO
- DFBOT/BOT – Annuity
- Hybrid Annuity Model (HAM)

PPP model shall be finalised after adequate due diligence and detailed assessment. The model for private participation will be proposed and final decision in this regard shall be taken by CDMA.

- Plastic waste Management:

- The APSPCB shall enforce the carry bag manufactured shall not be less than fifty microns in thickness.
- The ULBs shall enforce that retailers and street vendors shall not use any carry bags made of virgin or recycled plastic, having thickness less than 50 microns.
- The State Level Monitoring Committee (SLMC) under the chairman ship of Principal Secretary, Municipal Administration and Urban Development shall meet once in six months to review the implementation of the provisions of Plastic Waste Management Rules 2016. The Director of CDMA will be the conveyor for the committee.

C&D Waste Management

As per MSW Rules 2016 Construction and Demolition waste means any waste generated during construction, demolition or re-modelling of any civil structure, such as buildings, bridges, flyovers, roads, drainage and laying of services etc. or associated activities for infrastructure provision such as, site preparation by way of digging, levelling, laying of pipelines, cables etc.

Two C&D waste processing units at Visakhapatnam and Vijayawada are in operation under PPP model. The following mode of operation is envisaged:

Concession is provided for a period of 20 years – in which the construction is to be completed in 6 months.

- ULB is obligated to pay transportation charges to the developer
- The generator will pay transportation charges and processing fee to the developer
- Developer is responsible for collection and processing of C&D waste.

13. CAPACITY BUILDING, INSTITUTIONAL BUILDING & IEBC

Municipal Administration & Urban Development (MA&UD) and Government of Andhra Pradesh vide its G.O.507, formulated State Capacity Building & IEBC Mission Management Unit (SCIMMU) for all 110 ULBs in Andhra Pradesh to achieve the goals of Swachh Andhra in line with Swachh Bharat Mission of the Government of India. Roles and responsibilities of different institutions involved in sanitation and public health are as follows:

State Capacity Building & Information Education Behaviour Change Communication Mission Management Unit (SCIMMU)

1. Designing Capacity Building Content for all target groups in ULBs
2. Conduct Training for all the human resources on ground, supervisory and executive level as well as elected representatives in all 110 ULBs
3. Design Mass Communication material for public awareness
4. Design Interpersonal Communication activities and material for Behaviour Change Communication for community stakeholders
5. Roll out IEBC Campaigns, Activities as per annual calendar to reinforce the behaviour change goals continuously in all 110 ULBs
6. Provide technical and handholding support to the individuals/Institutions

The Municipal Commissioner will effectively leverage the state level and regional level agencies their resources available in all ULBs with other resources available through MEPMA like "Sadikara Mitras" to effectively roll-out the Capacity Building and Behaviour Change Communication interventions and garner greater involvement and cooperation from the waste generators, achieve their SWM goals

15. GOVERNANCE ARRANGEMENT

Advisory Board: The State Level Advisory Board (SLAB) already constituted under the chairmanship of Principal Secretary, Municipal Administration and Urban Development shall review the progress made by the ULBs in the implementation of SWM Rules 2016 and State Policy and Strategy. The Government has constituted State Level Advisory Body (SLAB) as specified in rules 23 (1) of SWM Rules for advising on implementation of Solid Waste Management Rules, 2016 vide G.O. Ms No. 350, MA&UD (B2) Department, dated 22.09.2017. The SLAB has convened its meetings. The SLAB shall meet alteast once in six months and advice the state government for taking measures that are necessary for expeditious and appropriate implementation of these rules. The Director of Municipal Administration is the member/convenor of the State Level Advisory Board.

SWM Cell: A separate cell with appropriate setup of staff headed by a Senior Level Officer shall be appointed for coordination and implementation of programmes and projects pertaining to Solid Waste Management. The cell shall support ULBs in the preparation of Detailed Project Reports (DPR) and Information Education and Communication (IEC) materials. The cell also develops management information system and update periodically to the post in the CDMA website for public information.

Table 4: Showing Tentative Timeframe for Implementation:

The ULBs shall make all efforts to implement as per the following timelines.

S. No	Activity	Time limit From Notification of Rules
1.	Identification of suitable sites for setting up solid waste processing facilities	6 Months
2.	Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand-alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.	6 Months
3.	Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities	6 Months
4.	Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source	6 Months
5.	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	6 Months
6.	Ensure separate storage, collection and transportation of construction and demolition wastes	6 Months
7.	Setting up solid waste processing facilities by all local bodies having 100000 or more population	6 Months
8.	Setting up solid waste processing facilities by local bodies and census towns below 100000 population	1 Year
9.	Setting up common or stand-alone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules	1 Year
10.	Setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules	1 Year
11.	Bio-remediation or capping of old and abandoned dump sites	1 – 5 Years

Public Disclosure:

All the ULBs shall display the following information on the website without fail.

- Bylaws incorporating the SWM Rules, 2016
- Actual user fee collected and penalties collected
- Form III – Annual report submitted by the operator of the facility to the ULB
- Form IV – Annual report on Solid Waste Management submitted by the local body to the CDMA
- Form V – Annual report on Plastic Waste Management submitted by the ULB to CDMA
- Annual awards

Recommendations:

Achieving paradigm shift from "Linear Approach" to "A Circular Economy Approach to Solid Waste Management"

CDMA shall setup a separate cell for coordination and implementation of programmes and projects pertaining to Solid Waste Management

Achieving Service Level Benchmarking with time frame

To incorporate SWM in the by-laws, including "User charges" and "Penalties" in line with "Polluter pays" principle.

To introduce "Recognition" and "Incentives" to encourage the compliance.

Pricing principle for the resource recovery / compost etc

To encourage PPP models in the SWM

To encourage the industry for CSR funding for the SWM

R. KARIKAL VALAVEN
PRINCIPAL SECRETARY TO GOVERNMENT

Annexure – 1: Form III

Format of annual report to be submitted by the operator of facility to the local body

1.	Name of the City/Town and State	
2.	Population	
3.	Area in sq. kilometres	
4.	Name & Address of the local body Telephone No. Fax No. E-mail	
5.	Name and address of operator of the facility	
6.	Name of officer in-charge of the facility Phone No: Fax No: E-mail:	
7.	Number of households in the city/town, Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
8.	Quantity of Solid waste	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd
	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	
	Quantity of solid waste disposed at landfill /tpd	
9.	Status of Solid Waste Management (SWM) service	
	Segregation and storage of waste at source	

	Whether solid waste is stored at source in domestic/commercial/ institutional bins If yes,	Yes/No
	Percentage of households practice storage of waste at source in domestic bins	%
	Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins	%
	Percentage of households dispose of throw solid waste on the streets	%
	Percentage of non-residential premises dispose of throw solid waste on the streets	%
	Whether solid waste is stored at source in a segregated form	Yes/No
	If yes, Percentage of premises segregating the waste at source	%
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments, hotels, restaurants educational institutions/ offices etc covered	
	Percentage of residential and non-residential premises covered in door to door collection through:	
	Motorized vehicle	%
	Containerized tricycle/handcart	%
	Other device	%
	If not, method of primary collection adopted	

	Sweeping of streets				
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned			Km	
	Frequency of street sweepings and percentage of population covered				
	Frequency	Daily	Alternate days	Twice a week	Occasionally

	Tools used	
	Manual sweeping	%
	Mechanical sweeping	%
	Whether long handle broom used by sanitation workers	Yes/No
	Whether each sanitation worker is given handcart/tricycle for collection of waste	Yes/No
	Whether handcart / tricycle is containerized	Yes/No
	Whether the collection tool synchronizes with collection/ waste storage containers utilized	Yes/No
	Secondary Waste Storage facilities	
	No. and type of waste storage depots in the city/town	No. Capacity in m3
	Open waste storage sites	
	Masonry bins	
	Cement concrete cylinder bins	
	Dhalao/covered rooms/space	
	Covered metal/plastic containers	
	Upto 1.1 m3 bins	
	2 to 5 m3 bins	
	Above 5m3 containers	
	Bin-less city	
	Bin/ population ratio	
	Ward wise details of waste storage depots (attach):	
	Ward No:	
	Area:	
	Population:	
	No. of bins placed	
	Total volume of bins placed	

	Total storage capacity of waste storage facilities in cubic meters		
	Total waste actually stored at the waste storage depots daily		
	Give frequency of collection of waste from the depots	Frequency	No. of bins
	Number of bins cleared	Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details)	
		No. of green bins:	
		No. of blue bins:	
		No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage	(%) of Manual Lifting of SOLID WASTE	%
		(%) of Mechanical lifting	%
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	
	Waste Transportation per day	No.	Trips made
	Type and Number of vehicles used (pl tick or add)	Waste transported	
	Animal cart		
	Tractors		
	Non-tipping Truck		
	Tipping Truck		
	Dumper Placers		
	Refuse collectors		
	Compactors		

	Others		
	JCB/loader		
	Frequency of transportation of waste	Frequency	% of waste transported
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Quantity of waste transported each day	/tpd	
	Percentage of total waste transported daily	%	
	Waste Treatment Technologies used		
	Whether solid waste is processed	Yes/No	
	If yes, Quantity of waste processed daily	/tpd	
	Land(s) available with the local body for waste processing (in Hectares)		
	Land currently utilized for waste processing		
	Solid waste processing facilities in operation		
	Solid waste processing facilities under construction		
	Distance of processing facilities from city/town boundary		
	Details of technologies adopted		
	Composting,	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled	
	Vermi composting	Qty. raw material processed Qty. final product produced Qty. sold	

		Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed
		Qty. final product produced
		Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Co-processing	Qty. raw material processed
	Combustible waste supplied to solid waste based power plants	
	Others	Qty
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	Kms
	Distance from the nearest habitation	Kms
	Distance from water body	Kms
	Distance from state/national highway kms	
	Distance from Airport kms	

	Distance from important religious places or historical monument kms	
	Whether it falls in flood prone area Yes/No	
	Whether it falls in earthquake fault line area Yes/No	
	Quantity of waste landfilled each day tpd	
	Whether landfill site is fenced	
	Whether Lighting facility is available on site	Yes / No
	Whether Weigh bridge facility available	Yes / No
	Vehicles and equipments used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes / No
	Provisions for gas venting provided	Yes/No, (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No, (if yes, attach technical data sheet)
10	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
11	What separate provisions are made for:	Attach details on Proposals, steps taken,
	Dairy related activities:	Yes / No
	Slaughter houses waste:	Yes / No
	C&D waste (construction debris):	Yes / No
12	Details of Post Closure Plan	Attach Plan
13	How many slums are identified and whether these are provided	Yes/ No (if Yes, attach details)

	with Solid Waste Management facilities:	
14	Give details of manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	
16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies.	

Signature of Operator

Dated:

Place:

Annexure – 2: Form IV

Format for annual report on solid waste management to be submitted by the local body

Calendar Year	Date of Submission of Report

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of local body Telephone No. Fax No. E-mail:	
5	Name of officer in-charge dealing with solid waste management (SOLID WASTEM) Phone No: Fax No: E-mail:	
6	Number of households in the city/town	
7	Number of non-residential premises in the city Number of election/ administrative wards in the city/town Quantity of Solid waste (solid waste)	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd
	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd

	Quantity of solid waste disposed at dumpsite/ landfill	/tpd
3	Status of Solid Waste Management service	
	Segregation and storage of waste at source	
	Whether SOLID WASTE is stored at source in domestic/commercial/ institutional bins, If yes,	Yes/No
	Percentage of households practice storage of waste at source in domestic bins	%
	Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins	%
	Percentage of households dispose or throw solid waste on the streets	%
	Percentage of non-residential premises dispose of throw solid waste on the streets	%
	Whether solid waste is stored at source in a segregated form, If yes,	Yes/No
	Percentage of premises segregating the waste at source	%
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste No. of households covered No. of non-residential premises including commercial establishments, hotels, restaurants educational institutions/ offices etc covered	

	Percentage of residential and non-residential premises covered in door to door collection through: Motorized vehicle Containerized tricycle/handcart Other device	% % %
	If not, method of primary collection adopted	
	Sweeping of streets	
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	Km
	Frequency of street sweepings and percentage of population covered	

	Frequency	Daily	Alternate Days	Occasionally

	Tools used	
	Manual sweeping	%
	Mechanical sweeping	%
	Whether long handle broom used by sanitation workers	Yes/No
	Whether each sanitation worker is given handcart/tricycle for collection of waste	Yes/No
	Whether handcart / tricycle is containerized	Yes/No
	Whether the collection tool synchronizes with collection/ waste storage containers utilized	Yes/No
	Secondary Waste Storage facilities	
	No. and type of waste storage depots in the city/town	No. Capacity in m^3
	Open waste storage sites	
	Masonry bins	
	Cement concrete cylinder bins	
	Dhalao/covered rooms/space	

	Covered metal/plastic containers		
	Upto 1.1 m3 bins		
	2 to 5 m3 bins		
	Above 5m3 containers		
	Bin-less city		
	Bin/population ratio		
	Ward wise details of waste storage depots (attach):		
	Ward No:		
	Area:		
	Population:		
	No. of bins placed		
	Total volume of bins placed		
	Total storage capacity of waste storage facilities in cubic meters		
	Total waste actually stored at the waste storage depots daily		
	Give frequency of collection of waste from the depots	Frequency	No. of bins
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/No	
		(if yes, add details)	
		No. of green bins:	
		No. of blue bins:	
		No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage		
	(%) of Manual Lifting of solid waste	%	
	(%) of Mechanical lifting	%	
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a	Yes/ No (if yes, specify)	

	segregated form			
	Waste transportation per day			
	Type and Number of vehicles used	No.	Trip made	Waste transported
	Animal cart			
	Tractors			
	Non-tipping Truck			
	Tipping Truck			
	Dumper Placers			
	Refuse collectors			
	Compactors			
	Others			
	JCB/loader			
	Frequency of transportation of waste	Frequency		(%) of waste transported
		Daily		
		Alternate day		
		Twice a week		
		Once a week		
		Occasionally		
	Quantity of waste transported each day	/tpd		
	Percentage of total waste transported daily	%		
	Waste Treatment Technologies used			
	Whether solid waste is processed	Yes/No		
	If yes, Quantity of waste processed daily	/tpd		
	Whether treatment is done by local body or through an agency			
	Land(s) available with the local body for waste processing (in Hectares)			
	Land currently utilized for waste processing			
	Solid waste processing facilities in operation			
	Solid waste processing facilities under construction			
	Distance of processing facilities from city/town			

	Details of technologies adopted	
	Composting,	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed
		Qty. final product produced
		Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to solid waste based power plants	
	Others	Qty
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	Kms
	Distance from the nearest habitation	Kms
	Distance from water body	Kms

	Distance from state/national highway	Kms
	Distance from Airport	Kms
	Distance from important religious places or historical monument	Kms
	Whether it falls in flood prone area	Yes/no
	Whether it falls in earthquake fault line area	Yes/no
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes/no
	Whether Lighting facility is available on site	Yes/no
	Whether Weigh bridge facility available	Yes/no
	Vehicles and equipment used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/no
	Provisions for gas venting provided	Yes/No (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No (if yes, attach technical data sheet)
	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
	What separate provisions are made for:	Attach details on Proposals, Steps taken,
	Dairy related activities:	Yes/No
	Slaughter houses waste:	Yes/No
	C&D waste (construction debris):	Yes/No

1	Details of Post Closure Plan	Attach Plan
1	How many slums are identified and whether these are provided with Solid Waste Management facilities:	Yes/ No (if Yes, attach details)
1	Give details of: Local body's own manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
1	Give details of: Contractor/ concessionaire's manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
1	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	
1	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies	

Signature of Municipal Commissioner

Date:

Place:

Annexure 3: Form V

Format of annual report to be submitted by the state pollution control board or pollution control committee

PART A

To,
……,
Andhra Pradesh State Pollution Control Board
……,
Vijayawada, Andhra Pradesh

1.	Name & address of the State Pollution Control	:	
2.	Number of local bodies responsible for management of solid waste in the State/Union territory under these rules	:	
3.	No. of authorisation application Received	:	
4.	A Summary Statement on progress made by local body in respect of solid waste management	:	
5.	A Summary Statement on progress made by local bodies in respect of waste collection, segregation, transportation and disposal	:	
6.	A summary statement on progress made by local bodies in respect of implementation of Schedule II	:	
Date: …… Place: ……..			Chairman or the Member Secretary State Pollution Control Board/ Pollution Control Committee

PART B

Towns/cities		
Total number of towns/cities		
Total number of ULBs		
Number of class I & class II cities/towns		
Authorisation status (names/number)		
Number of applications received		
Number of authorisations granted		
Authorisations under scrutiny		
SOLID WASTE Generation status		
Solid waste generation in the state (TPD)		
collected		
treated		
landfilled		
Compliance to Schedule I of SW Rules (Number/names of towns/capacity)		
Good practices in cities/towns		
House-to-house collection		
Segregation		
Storage		
Covered transportation		

Processing of SW (Number/names of towns/capacity)

Solid Waste processing facilities setup:

SN	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility operational:

SN	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility under installation/planned:

SN	Composting	Vermi-composting	Biogas	RDF/Pelletization

Waste-to-Energy Plants: (Number/names of towns/capacity)

SN	Plant Location	Status of operation	Power generation (MW)	Remarks

Disposal of solid waste (number/names of towns/capacity):		
Landfill sites identified	:	
Landfill constructed	:	
Landfill under construction	:	
Landfill in operation	:	
Landfill exhausted	:	
Landfilled capped	:	
Solid Waste Dumpsites (number/names of towns/capacity):		
Total number of existing dumpsites	:	
Dumpsites reclaimed/capped	:	
Dumpsites converted to sanitary landfill	:	

Monitoring at Waste processing/Landfills sites

SN	Name of facilities	Ambient air	Groundwater	Leachate quality	Compost quality
1.					
2.					

Status of Action Plan prepared by Municipalities	
Total number of municipalities	
Number of Action Plan submitted	

Bibliography

1. Ministry of Environment, Forest and Climate Change Solid waste Management Rules, 2016
2. Consolidated Annual Review Report on Implementation of Solid Waste Management Rules, 2016 by CPCB
3. Pune Municipal Corporation bye-laws - 2017
4. National Urban Sanitation Policy
5. NGT Judgement 22nd December 2016
6. Central Public Health and Environmental Engineering Organisation (CPHEEO)
7. Andhra Pradesh State Sanitation Strategy 2016
8. The National Action Plan for Municipal Solid Waste Management by Central Pollution Control Board